

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs with Statistical Sampling of SUS
 See the "Instructions" tab (worksheet) for detailed instructions.

Project ID: Arkwood Dixon Site
 Property Sample ID: Combine DU 1,2,3,4 and 6 into single large DU
 Date: 10-Jan-16
 Operator: OMCumberling

DU#	DU Name	DU Area (any constant units)	SU concentrations (ppt Dixon TEQ)										Number of Sampled SUS	Total No. of SUS in DU	Vn of DU	DU Mean	SD bet wren SUS	Within-DU CV (1/s)	Ave # inc in sampled SUS*	Within-SU Btw-inc. SD	Within-DU CV (inc)	SE of DU	95% UCL	
			SU 1	SU 2	SU 3	SU 4	SU 5	SU 6	SU 7	SU 8	SU 9	SU 10											Student's-t	Chebyshev
1	Uncapped Area East	1.2	379	390	1305								1	2	0.09	84	60	0.6	30	34.9	2.2	232	1539	1562
2	Capped Area	11	195	60	248	610	463	109	168	128			8	44	0.81	248	191	0.77	30	149.0	3.3	68	376	542
3	Stormwater Ditch W	0.14	460	167									2	2	0.01	460	60	0.72	40	315.0	2.1	481	2981	3043
4	Stormwater Ditch S	0.17	190	60									2	2	0.01	190	60	0.50	40	395.0	2.0	450	3951	3916
6	Uncapped Area West	1.0	1556	3121	1771								3	4	0.07	2149	848	0.39	32	451.0	1.2	490	3579	4284
Total Area (in acres) of Combined DU =			13.31										18	57	1.00	468	172	Low			High	69.4	584	761

For calculation purposes only

W*2	SD*2	1/n	W*2*SD*2/n
0.008	161370	0.13	90040
0.663	36506	0.13	1307373
0.0011	46272	0.50	617
0.00016	405000	0.50	1026
0.005	719658	0.33	86392

Notes
 DU
 SD
 SE
 SU
 UCL

Decision unit
 Standard deviation
 Standard error
 Sampling unit
 Upper confidence limit

Degrees of freedom by Welch-Satterthwaite approximation = 10.27

Chebyshev 95% UCL is recommended because the dispersion of the data is high.
 The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

DU#	Sample ID	TEQ Result (ppt)	DU#	Sample ID	TEQ Result (ppt)	DU#	Sample ID	TEQ Result (ppt)	DU#	Sample ID	TEQ Result (ppt)	DU#	Sample ID	TEQ Result (ppt)	DU#	Sample ID	TEQ Result (ppt)
DU1	DU1SU2	379	DU4	DU4SU1 repeat	1602	DU5	DU5SU1	1052	DU6	DU6SU1	1690	DU7	DU7SU1	1052	DU8	DU8SU1	1052
	DU1SU4	1040		DU4SU2	602		DU5SU2	1052		DU6SU2	1771		DU7SU2	1052		DU8SU2	1052
	DU1SU5	1105		DU4SU3	1052		DU5SU3	1052		DU6SU3	1771		DU7SU3	1052		DU8SU3	1052
	DU1 mean =	541		DU4 mean =	605		DU5 mean =	605		DU6 mean =	2149		DU7 mean =	605		DU8 mean =	605
	DU1 SD =	402		DU4 SD =	60.5		DU5 SD =	60.5		DU6 SD =	848		DU7 SD =	60.5		DU8 SD =	60.5
DU1 %RSD =	47.8	DU4 %RSD =	10.1	DU5 %RSD =	10.1	DU6 %RSD =	39.5	DU7 %RSD =	10.1	DU8 %RSD =	10.1						
DU1 1-sided 95% t-UCL =	1519	DU4 1-sided 95% t-UCL =	3015	DU5 1-sided 95% t-UCL =	3015	DU6 1-sided 95% t-UCL =	4284	DU7 1-sided 95% t-UCL =	3015	DU8 1-sided 95% t-UCL =	3015						
DU1 95% Cheb-UCL =	1953	DU4 95% Cheb-UCL =	3015	DU5 95% Cheb-UCL =	3015	DU6 95% Cheb-UCL =	4284	DU7 95% Cheb-UCL =	3015	DU8 95% Cheb-UCL =	3015						

NO WEIGHTING FOR AREA

DU#	Sample ID	TEQ Result (ppt)
DU1	DU1SU2	379
DU1	DU1SU4	1040
DU1	DU1SU5	1105
DU1	DU1 mean	541
DU1	DU1 SD	402
DU1	DU1 %RSD	47.8
DU1	DU1 1-sided 95% t-UCL	1519
DU1	DU1 95% Cheb-UCL	1953
DU4	DU4SU1 repeat	1602
DU4	DU4SU2	602
DU4	DU4SU3	1052
DU4	DU4 mean	605
DU4	DU4 SD	60.5
DU4	DU4 %RSD	10.1
DU4	DU4 1-sided 95% t-UCL	3015
DU4	DU4 95% Cheb-UCL	3015
DU5	DU5SU1	1052
DU5	DU5SU2	1052
DU5	DU5SU3	1052
DU5	DU5 mean	605
DU5	DU5 SD	60.5
DU5	DU5 %RSD	10.1
DU5	DU5 1-sided 95% t-UCL	3015
DU5	DU5 95% Cheb-UCL	3015
DU6	DU6SU1	1690
DU6	DU6SU2	1771
DU6	DU6SU3	1771
DU6	DU6 mean	2149
DU6	DU6 SD	848
DU6	DU6 %RSD	39.5
DU6	DU6 1-sided 95% t-UCL	4284
DU6	DU6 95% Cheb-UCL	4284
DU7	DU7SU1	1052
DU7	DU7SU2	1052
DU7	DU7SU3	1052
DU7	DU7 mean	605
DU7	DU7 SD	60.5
DU7	DU7 %RSD	10.1
DU7	DU7 1-sided 95% t-UCL	3015
DU7	DU7 95% Cheb-UCL	3015
DU8	DU8SU1	1052
DU8	DU8SU2	1052
DU8	DU8SU3	1052
DU8	DU8 mean	605
DU8	DU8 SD	60.5
DU8	DU8 %RSD	10.1
DU8	DU8 1-sided 95% t-UCL	3015
DU8	DU8 95% Cheb-UCL	3015